REMARKS

The Office Action mailed September 4, 2002 indicated that an initialed copy of Form PTO-1449 was enclosed. However, no copy was received. It is requested that the Examiner initial and return a copy of the Form PTO-1449 submitted with the application papers filed on August 30, 2000. For the Examiner's convenience, a copy of the Form PTO-1449 is attached.

The Applicants request reconsideration of the rejection.

Claims 1-4 are pending.

Claims 1-4 were rejected under 35 USC §103(a) as being unpatentable over Rossin et al, US 6,069,291 (Rossin), in view of JP 11-216455 (JP '455) or JP 08-318122 (JP '122) or Lang et al, US 6,235,256 (Lang). The Applicants traverse as follows.

In the disclosed invention, a perfluorocompound (PFC) gas is decomposed in a decomposition tower. The reaction gas exhausted from the PFC decomposition tower is introduced into a cooling chamber and cooled by water sprayed from a spray nozzle. Typically, HF and water-soluble components in the gas resulting from the decomposition are removed by absorption into water at an exhaust gas washing tower. Then, the gas is introduced into a mist removal apparatus, from which HF and

corrosive byproducts of the decomposition are removed from exhaust gas and waste water. In a preferred embodiment, a cyclone-type mist separating apparatus is disclosed, although other types of mist separating means may be employed.

Thus, the primary objective of the present invention is to remove such byproducts as SO_x and NO_x from the washed gas in the mist separating apparatus. In this regard, it is noted that the removal of the mist is not per se the objective of the invention, except to the extent that removing the mist accompanies the removal of the harmful byproducts.

The inventors, in particular, have found that HF could be removed suitably in the exhaust gas washing tower, but such byproducts as SO_x and NO_x could not be removed to a sufficient degree. Thus, the SO_x and NO_x must be removed by a different technique to avoid corrosion of downstream pipes. Independently, SO_x and NO_x cannot be removed by a cyclone, filter, or similar type mist separating apparatus. However, because SO_x and NO_x are accompanied by water after the washing, they can be removed by the cyclone, filter, or similar type mist separating apparatus.

In the primary reference to Rossin, a method is disclosed for decomposing perfluoroalkanes by contact with catalysts in the presence of oxygen. The perfluoroalkanes are compounds of

carbon and fluorine, and HF and CO_2 are generated as decomposition products. However, SF_6 and NF_3, source materials for generating SO_x and NO_x, are not found in Rossin's perfluoroalkanes. Thus, Rossin is not concerned with the problem of removing SO_x or NO_x from a washed gas after decomposition.

Similarly, none of the secondary references discloses the need or any technique for removing SO_x or NO_x. JP '455 discloses the use of a cyclone for removing water downstream of an exhaust gas washing tower. However, the cyclone does not remove SO_x or NO_x. JP '122 discloses an active carbon bed for removing undecomposed flon gases, downstream of an exhaust gas washing tower, but does not remove SO_x or NO_x. Lang discloses a method for removing mist by colliding an acidic exhaust gas with walls, followed by removal of acidic components by spraying water into a demister. However, Lang does not disclose anything corresponding to the exhaust gas washing tower or subsequent treatment for removal of SO_x or NO_x as claimed.

In view of the foregoing amendments and remarks, the Applicants request reconsideration of the rejection and allowance of the claims.

Respectfully submitted,

Daniel J. Stanger
Registration No. 32,846
Attorney for Applicant(s)

MATTINGLY, STANGER & MALUR, P.C.
1800 Diagonal Road, Suite 370
Alexandria, Virginia 22314
Telephone: (703) 684-1120
Facsimile: (703) 684-1157
Date: December 4, 2002

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on 12/4/2002 **, by**

MARKED-UP VERSION OF REWRITTEN CLAIM(S)

1. (Amended) A method of treating perfluorocompound (PFC) gas comprising the steps of:

decomposing [the PFC] at least one of SF_6 and NF_3 present in the PFC gas,

washing the gas generated by the decomposition [of PFC], and

exhausting the washed gas, wherein

said step of exhausting the washed gas is performed after removing [mist] at least one of SO_x and NO_x accompanying water from said washed gas.

2. (Amended) A method of treating perfluorocompound (PFC) gas comprising the steps of:

decomposing [the PFC] at least one of SF_6 and NF_3 present in the PFC gas,

washing the gas generated by the decomposition [of PFC], and

exhausting the washed gas, wherein

said step of exhausting the washed gas is performed after removing [mist containing PFC decomposition product] at least

one of SO_x and NO_x accompanying water, which are decomposition products of PFC, from said washed gas.

3. (Amended) A method of treating perfluorocompound (PFC) gas comprising the steps of:

decomposing [the PFC] at least one of SF_6 and NF_3 present in the PFC gas by any [one of] method selected from the group consisting of hydrolysis, oxidation decomposition, combustion, and thermal decomposition, [and]

washing the gas generated by said decomposition [of PFC] by making said gas contact with at least [either] one of water [or] and an aqueous alkaline solution, and [further comprises:

a step of removing mist containing PFC decomposition product]

exhausting the washed gas, wherein

said step of exhausting the washed gas is performed after removing at least one of SO_x and NO_x accompanying water, which are decomposition products of said at least one of SF_6 and NF_3, from said washed gas.

4. (Amended) A method of treating perfluorocompound (PFC) gas comprising the steps of:

decomposing [the PFC] at least one of SF_6 and NF_3 present in the PFC gas by diluting said [PFC] at least one of SF_6 and NF_3 with nitrogen, and contacting the diluted gas with a decomposition catalyst in the presence of air and water, [and]

washing the gas generated by said decomposition [of PFC] by making said gas contact with at least [either] one of water [or] and an aqueous alkaline solution, and [further comprises:

a step of removing mist containing PFC decomposition product]

exhausting the washed gas, wherein

said step of exhausting the washed gas is performed after removing at least one of SO_x and NO_x accompanying water, which are decomposition products of said at least one of SF_6 and NF_3, from said washed gas.